



Massachusetts Department of Environmental Protection

Source Water Assessment Program (SWAP) Report

for

2 Allen Street Professional Building

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- Inventory land uses within the recharge areas of all public water supply sources;
- Assess the susceptibility of drinking water sources to contamination from these land uses; and
- Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared
November 5, 2003

Table 1: Public Water System (PWS) Information

<i>PWS Name</i>	2 Allen Street Professional Building
<i>PWS Address</i>	2 Allen Street
<i>City/Town</i>	Hampden, Massachusetts
<i>PWS ID Number</i>	1120022
<i>Local Contact</i>	Mr. Karnig Zeroogian
<i>Phone Number</i>	413-566-3097

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	1120022-01G	142	442	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The 2 Allen Street Professional Building is located on the corner of Allen Street and Wilbraham Road in Hampden. The facility consists of two separate buildings that house professional offices and a day care center. The system is served by single, 6-inch diameter bedrock well drilled to approximately 199 feet with an estimated yield of approximately 7 gallons per minute (gpm). The facility on average uses approximately 1,630 gpm. Geologic mapping in the area indicates overburden deposits of 85 feet of sand with 14 feet of till over bedrock at the school. The school is located in an area that is mapped as a potential, medium yield, sand and gravel aquifer. The area is a bedrock valley that was filled with stratified drift (sand and gravel) during the recession of the

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

glaciers some 12,000 to 18,000 years ago. The facility is located in an area where the bedrock is mapped as the Jurassic Age, sedimentary redbeds of the Connecticut River valley.

The Zone I is the area immediately around the wellhead where only activities associated with supplying water or other non-threatening activities are allowed to occur. The Interim Wellhead Protection Area (IWPA) is a larger area that potentially contributes water to the well. The IWPA is only an interim protection area until an actual Zone II contribution area is delineated; the actual area of contribution to the wellhead may be larger or smaller than the IWPA. The well has a Zone I protective radius of 142 and an IWPA radius of 418 feet. These protective radii were calculated using an estimate of water use based on Title 5 usage estimates of 1,900 gallons per day. Current metered water use data indicate maximum usage is approximately 1,700 gpd. Please refer to the attached map that shows the Zone I and IWPA.

The Zone I area for the well is not conforming to current DEP requirements. The Zone I includes the all or part of two office buildings and associated parking, Wilbraham Road, a residential property and the facility septic system including the leaching pits. The facility is heated with natural gas. Additional office buildings, residential and commercial uses are included in the IWPA.

The surficial maps indicate a relatively thick (>40 feet) sequence of sand and gravel deposits in the valley where the facility is located and there is no evidence of a continuous, protective confining clay layer in the vicinity of the well. Wells drilled in these conditions are considered highly vulnerable to potential contamination from the ground surface because there is no significant hydrogeologic barrier, such as clay, to prevent surface contamination from migrating into the aquifer. The water does not require and is, at the time this report was prepared, not treated. You may request additional information regarding the quality of the water, from the local contact listed in Table 1.

Please refer to the following section, attached map of the Zone I and IWPA and Table 2 for additional assessment information.

2. Discussion of Land Uses in the Protection Areas

During the assessment, several land uses and activities were identified within the

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Sources of Contaminants	Zone I	IWPA	Threat	Comments
Non-conforming Zone I	--	--	--	Contact DEP before expanding or modifying your system.
Transportation corridors	Yes	Yes	Moderate	Petroleum products, hazardous materials spilled during accidents and stormwater runoff.
Landscaping	Yes	Yes	Moderate	Do not use pesticide or fertilizers.
Office facilities and parking	Yes	Yes	Moderate	Limit road salt usage use BMPs for household hazardous materials. Monitor parking areas.
Medium density residential housing	Yes	Yes	Moderate	Septic systems and household hazardous materials.

-For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Non-conforming Zone I,**
2. **Office facilities,**
3. **Residential housing, and**
4. **Transportation corridor.**

There are several activities within the Zone I and IWPA that pose a significant threat to the water supply. The overall ranking of susceptibility to contamination for the well is moderate. Please refer to Table 2.

1. Non-conforming Zone I – The water supplier does not own or control the entire Zone I area for either well. Please note that systems not meeting DEP Zone I requirements for ownership or control, must get DEP approval and address Zone I ownership prior to increasing water use or modifying systems. The Zone I extends across a public road and includes one of the office buildings.

Zone I Recommendations:

- ✓ Prohibit any additional activities within Zone I and, where feasible, remove non-conforming activities within the Zone I areas.
- ✓ Use Best Management Practices for handling treatment chemicals and vehicles used to access the area.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Inspect the well regularly to ensure integrity of the cap and the sanitary seal. Inspect drainage around the well at the same time.

2. Office facilities - Generally day care and office facilities use only household hazardous materials for cleaning. All of the facility is located within the Zone I or IWPA of the well. Potential exists for contamination of the well by onsite use of fertilizers or pesticides. The dentist office should be using BMP applicable to that profession to eliminate any potential non-sanitary waste from the wastewater stream.

Recommendations:

- ✓ Continue the use of Best Management Practices for all activities at the facility. Consider drought resistant grasses and/or low release nutrient fertilizers in the IWPA, as required. Do not use or store pesticides, fertilizers or deicing materials within Zone I.

- ✓ Investigate Integrated Pest Management and Best Management Practices within the IWPA as necessary.
- ✓ Use Best Management Practices for handling treatment chemicals and vehicles used to access the area.
- ✓ Review your emergency response plan regarding accidental releases within the area. Ensure that emergency responders in town are aware of the locations of your resource areas.
- ✓ Monitor roadside and parking areas for spills and leaks. This is particularly important since the storm drains discharge directly to the ground.
- ✓ Ensure that the dentist is using BMPs to manage wastewater appropriately.

3. Residential housing – Residential development in general poses minimal threat to public and private water supplies provided there is proper management of household hazardous materials and maintenance of septic systems. Septic systems are located within the Zone I and IWPA of the well. If a septic system fails or is not properly maintained it could be a potential

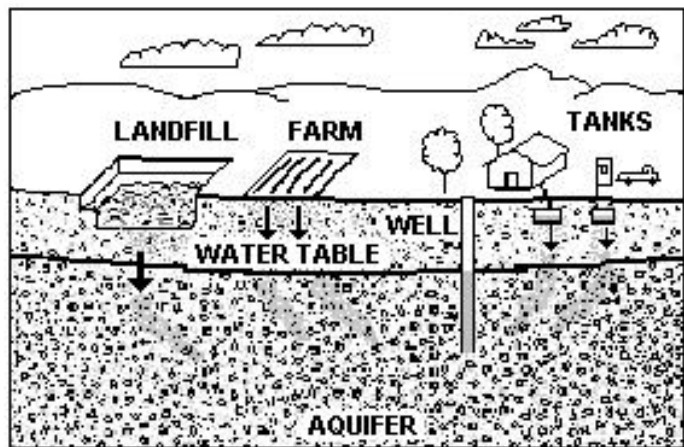


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Catherine V. Skiba in DEP's Springfield Regional Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/ including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

Facilities Management:

- ✓ Staff should be instructed on the proper disposal of spent household chemicals. Include custodial staff, groundskeepers, and certified operator

Planning:

- ✓ Work with local officials to develop an Aquifer Protection District Bylaw that includes the well's IWPA and to assist you in

source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

Recommendations:

- ✓ Staff should be instructed on the proper disposal of spent household chemicals. Include custodial staff, groundskeepers, and certified operator.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems and supply this information to the Town to distribute to residents.
- ✓ Work with the town to promote household hazardous waste collection days.
- ✓ Avoid septic tank cleaners, especially those with acids and solvents.

4. Transportation corridor – Allen Street and Wilbraham Road are located within the Zone I and IWPA. Accidents and normal use and maintenance of roads pose a potential threat to water quality. Catch basins transport stormwater from roadways and adjacent properties to the ground, streams, rivers or reservoir. As flowing stormwater travels, it picks up de-icing materials, petroleum chemicals and other debris on roads and contaminants from streets and lawns. Common potential contaminants in stormwater originate from automotive leaks, automobile maintenance and car washing, accidental spills as well as waste from wildlife and pets.

Recommendations:

- ✓ Work with the Town Highway Department to determine the location and discharge points of road runoff, as is feasible. If reasonable, direct stormwater discharge downgradient of the well.
- ✓ The town should review their eligibility for potential USDA funding for mitigation and prevention of runoff pollution through the Environmental Quality Incentives Program (EQIP). For more information, call the local office in Hadley at 413-585-1000 or visit the U.S.D.A. web site at www.ruraldev.usda.gov. Fact sheets are available online - <http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf>.
- ✓ Prepare an Emergency Response Plan that includes coordination with the town emergency responders in the event of an accident near the wellhead.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will further reduce the well's susceptibility to contamination.

Please review and adopt the key recommendations listed above and as follows:

Zone I and IWPA:

- ✓ Prohibit any new non-water supply activities from the Zone I.
- ✓ Conduct regular inspections of the Zone I.
- ✓ Monitor activities and if there is evidence of increased activity or access.
- ✓ Post drinking water supply signs in key location such as along the access road and in the parking area away from the well.
- ✓ Provide information to staff about the potential hazards of household chemicals, lawn care chemicals and fertilizers.
- ✓ Use Best Management Practices (BMPs) for the use of petroleum products, lawn care products, pesticides and household hazardous waste.
- ✓ Request that the dentist office use BMPs for waste management as appropriate.

continued protection of the water supply.

- V Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- V Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts.
- V Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. If funds are available, each program year, the Department posts a new Request for Response (RFR), grant application form. Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at <http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf>.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to encourage discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area
- Developing a Wellhead Protection Plan
- Recommended Source Protection Measures Fact Sheet